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(71) Applicant  
St. Regis Packaging Limited,

(Incorporated in United Kingdom),  
Hudson Road, Launceston, Cornwall PL15 9HN

(72) Inventor  
Roger Joseph Wonnacott

(74) Agent and/or Address for Service  
J.Y. & G.W. Johnson, Furnival House, 14-18 High Holborn,  
London WC1V 6DE

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## (54) Cartons

(57) A packaging carton (e.g. for cans 31 of drink) comprises a reinforcing tape (18) incorporated in the board material from which the carton is formed which tape reinforces a carrying handle (20) defined by two parallel cuts formed in an end wall of the carton. Access to the contents of the carton are obtained by defining access flaps (23, 24) delimited by lines of weakness (22a, 22b) which extend up to the cuts defining the carrying handle. By locating the handle (20) in the median plane between two rows of cans, free passage of cans from the opening provided by an access flap is prevented by the handle, thus ensuring one-by-one dispensing of the cans from the carton.

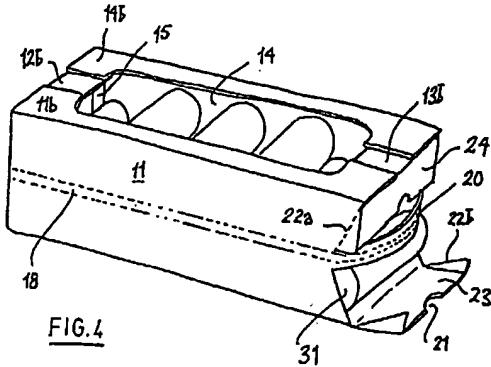


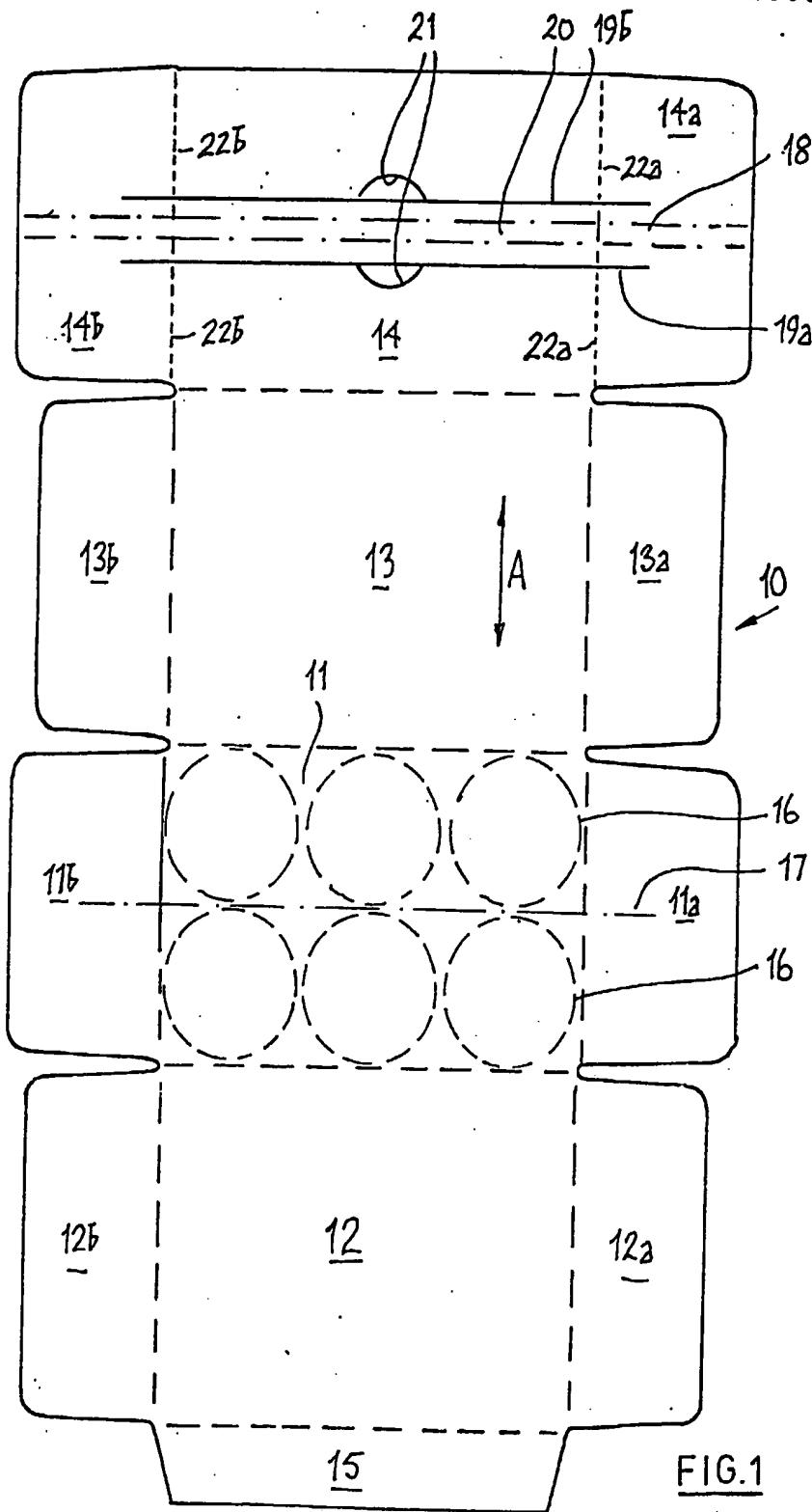
FIG. 4

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The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.

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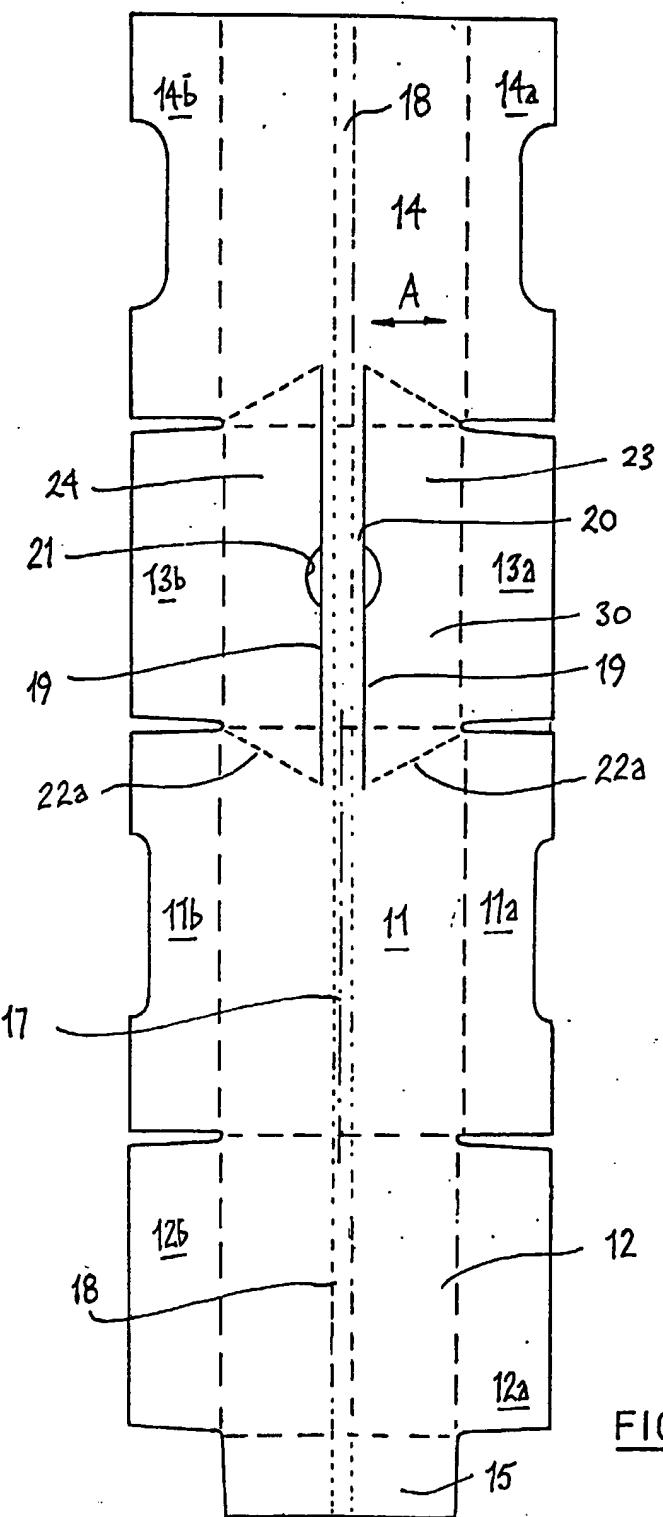
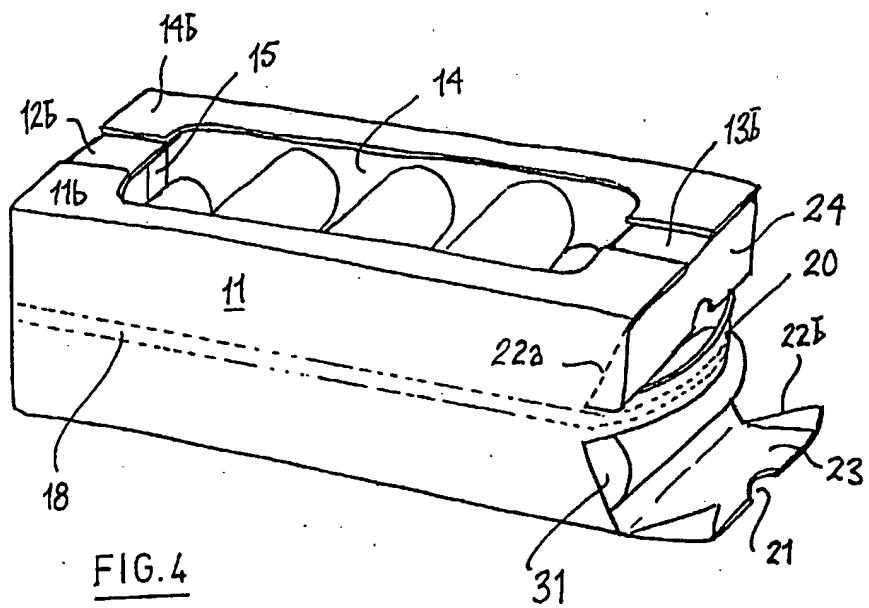
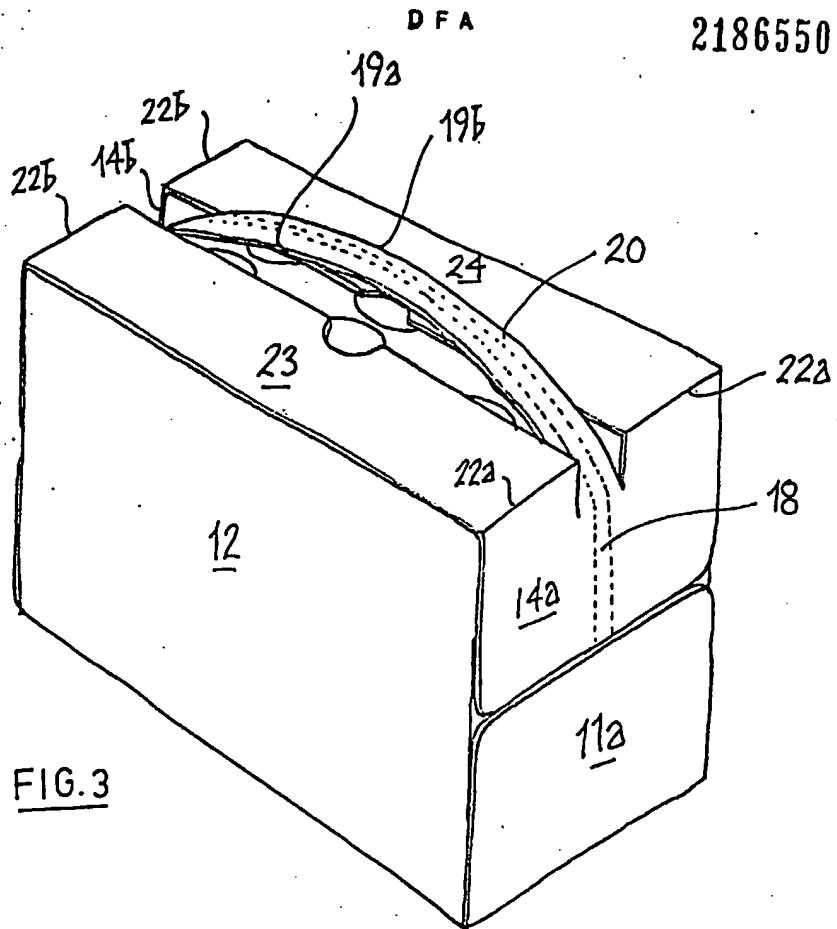


FIG. 2

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SPECIFICATION

## Improvements in packaging

5 This invention relates to an improved method of packaging a plurality of identically sized articles (such as cans of drink) and to an improved packaging carton for putting the method into practice.

In particular, this invention relates to a packaging 10 method and carton which enables the same carton to be used for the retailing of the packaged articles and for their one-by-one dispensing when required.

It is known to provide a reinforced carrying handle on a packaging carton by incorporating a reinforcing 15 tape in a board from which the carton is made and forming the carrying handle in such a position on the board that it includes the incorporated tape. It is also known to provide a packaging carton that has at least one line of weakness formed thereon to delineate an 20 opening flap and provide user-easy access to the articles packaged in the carton.

This invention relates to a novel combination of 25 these two known features.

According to one aspect of the invention, a method 30 of packaging a plurality of identically sized articles comprises locating the required number of articles in two adjacent rows in a right parallelepipedic carton folded up from a preformed blank of stiff but foldable board material, the board material incorporating firstly a reinforcing tape which extends at least across 35 one wall of the carton and lies in the median plane between the two rows and secondly a spaced-apart pair of lines of weakness which extend towards said reinforcing tape.

35 Preferably the blank is folded around a double row array of articles, but it is not ruled out that the two rows of articles can be slipped into a partially erected carton.

Desirably the blank has two at least substantially 40 parallel cuts formed one on each side of the reinforcing tape to define a handle region and said pair of lines of weakness terminate at, or adjacent to, one of said cuts. Suitably the cuts extend completely across the said one wall of the completed carton and each 45 encroaches slightly on either or both of the adjacent walls of the carton that also incorporate the reinforcing tape.

The blank may be dimensioned to give rise to a 50 carton that completely surrounds the articles or it may provide at least one opening through which a part only of at least some of the articles in at least one row can be viewed. The board material can be corrugated or non-corrugated fibreboard and if corrugated material is used, the reinforcing tape desirably 55 extends at right angles to the flutes of the corrugations since such an orientation is more easily effected on the corrugator and applying the tape on the corrugator means it can be disposed between the corrugated sheet and one facing sheet of the board 60 and can thus be sensibly invisible in the completed carton. Further, the heat used to bond the sheets together to make the board can be used to fuse a heat-sensitive adhesive on the tape and fix it in place.

The spaced-apart lines of weakness can be formed 65 by providing slit-score or perforation lines in the

board blank and preferably these are spaced apart by at least the axial length of the packaged cylindrical articles. Thus the lines of weakness can coincide with edges of the said one wall or they can be formed one in each adjacent wall that also incorporates the reinforcing tape.

According to a further aspect of the invention, a packaging carton formed from a blank of stiff but foldable board material and containing two rows of identically sized articles, comprises a reinforced handle which extends parallel to and is intersected by the median plane between the rows and an opening flap delineated by said handle and by spaced-apart lines of weakness.

80 As with its method aspect, a carton according to this invention can be formed from corrugated or non-corrugated fibreboard material, can completely enclose the packaged articles or can leave some exposed and can have a handle which encroaches 85 upon the board material of three adjacent walls of a right parallelepipedic carton.

The invention will be further described, by way of example, with reference to the accompanying drawings, in which:

90 *Figure 1* shows a blank for a first embodiment of carton,

*Figure 2* shows a blank for a second embodiment of carton,

*Figure 3* shows a filled carton erected from the

95 blank of *Figure 1* prepared for carrying, and

*Figure 4* shows a carton erected from a blank of the type shown in *Figure 2* with the carton opened for one-by-one dispensing of its contents.

The blank 10 of *Figure 1* is designed for packaging 100 six 440 ml cylindrical cans of drink (e.g. beer or lager). It comprises a base wall 11, two side walls 12 and 13, a top wall 14 and four flaps 11a-14a and 11b-14b to make the end walls of the erected carton. A securing flap 15 is formed along one edge of the side

105 wall 12 and is attached to the underside of the top wall 14 as the blank is folded around six cans arranged in two rows of three. The locations of the ends of the cans is shown in dashed lines 16 on the base wall 11, the central or median plane between the two 110 rows of cans being shown at 17. In wrapping the blank around the collated array of six cans, the flaps 12a, 13a underlie the flaps 11a and 14a to make one end wall and the flaps 12b, 13b underlie the flaps 11b and 14b to make the other end wall.

115 The folding and gluing (or other fixing method) used to form the carton (shown in *Figure 3*) from the blank of *Figure 1* are well known procedures which need not be described in detail here.

When the blank is of double faced corrugated 120 fibre-board the flutes of the corrugations run in the direction of the arrows A shown in *Figure 1*. The pre-formed creases that delimit the walls 11, 12 and 13 and their flaps (11a, 12a, 13a, 11b, 12b, 13b and 15) are conventionally formed and all fold downwardly 125 as shown in *Figure 1*.

The important difference in the carton shown in *Figure 1* resides in the top wall 14 and its flaps 14a, 14b. Embedded between layers of the board material from which the blank is made is a reinforcing tape 18 130 (e.g. a hot melt adhesive coated polyester fibre tape

made by Sesame Industries Ltd. of Quebec, Canada). This tape 18 is centrally located across the top wall 14 and its associated end wall flaps 14a, 14b and thus will be intersected by the median plane 17 between 5 the two rows of cans when the carton is erected and filled. Two parallel cuts 19a and 19b are formed one on each side of the tape 18 and these define a carrying handle 20. Cut-outs 21 provide finger access to the handle to lift it clear of the top wall 14, when the 10 filled carton is to be carried. The cuts 19a and 19b which extend into the end wall flaps 14a and 14b allow the ends of the handle 20 to move inwardly as the central region of the handle 20 lifts clear of the top wall 14.

15 The fold lines 22a, 22b between the top wall 14 and the respective end wall flap 14a, 14b are perforated or slit-score lines up to the respective cuts 19a, 19b but are simple unperforated fold lines where they traverse the handle 20. The fold lines 22a, 22b thus 20 define two pairs of lines of weakness in the blank which extend up to the cuts 19a, 19b.

To dispense cans from the carton shown in Figure 3, one of the access flaps 23, 24 can be pulled back away from the handle 20 so that the board material is 25 torn along the respective pair of lines of weakness exposing the ends of the cans in one row.

The blank shown in Figure 1 is for the six can pack (shown in Figure 3) but four-, eight-, ten- or twelve-can packs can equally well be produced.

30 Figure 2 shows a second embodiment of blank which only partially envelops six cans as can be seen from Figure 4 (although this shows a larger carton). This embodiment is particularly suitable for one-by-one dispensing (e.g. from a refrigerator) with the 35 rows of cans one above the other. Similar reference numbers have been used in Figures 1 and 2 to designate similar integers.

The reinforcing tape 18 now extends the whole 40 length of the blank and the handle 20 is formed in one end wall 30. The lines of weakness 22a, 22b do not coincide with the fold lines between the base wall 11 and the end wall 30 and between the top wall 14 and the end wall 30 but rather extend at an angle to terminate at the ends of the respective cuts 19a, 45 19b.

The carton of Figure 4 is for twelve cans (rather than the four which would be accommodated in the blank of Figure 2) and can be carried safely using the reinforcing handle 20. When can dispensing is required, the lower one of the access flaps 23, 24 is torn back using the lines of weakness and the first can available can be removed from under the handle 20. As the first can is removed another (e.g. can 31 from the upper row) takes its place but this second can will 55 be retained in the carton by the presence of the reinforced handle 20 which, since it lies symmetrically with respect to the median plane 17, will act as a stop to free passage of cans from the carton.

The carton and method of this invention are expected 60 to find their most important commercial application in the drinks industry, but it should be appreciated that the invention is not limited to that end-use. Thus although articles of circular shape are very suitably packaged in accordance with this invention two 65 rows of articles of polygonal (e.g. rectangular) cross-

section can equally well be employed.

## CLAIMS

- 70 1. A method of packaging a plurality of identically sized articles comprises locating the required number of articles in two adjacent rows in a right parallelepipedic carton folded up from a preformed blank of stiff but foldable board material, the board material incorporating firstly a reinforcing tape which extends at least across one wall of the carton and lies in the median plane between the two rows and secondly a spaced-apart pair of lines of weakness which extend towards said reinforcing tape.
- 75 2. A method as claimed in claim 1, in which the blank is folded around a double row array of articles to create a carton filled with two rows of articles.
- 80 3. A method as claimed in claim 1 or claim 2, in which the blank has two at least substantially parallel 85 cuts formed one on each side of the reinforcing tape to define a handle region and said pair of lines of weakness terminate at, or adjacent to, one of said cuts.
- 85 4. A method as claimed in claim 3, in which the 90 cuts extend completely across the said one wall of the completed carton and each encroaches slightly on either or both of the adjacent walls of the carton that also incorporate the reinforcing tape.
- 90 5. A method as claimed in claim 2, in which the 95 blank is dimensioned to give rise to a carton that completely surrounds the articles but provides at least one opening through which a part only of at least some of the articles in at least one row can be viewed.
- 95 100 6. A method as claimed in any preceding claim, in which the board material is corrugated fibreboard and the reinforcing tape extends at right angles to the flutes in the corrugations, the tape being disposed between the corrugated sheet and one facing sheet of the board and is thus sensibly invisible in the completed carton.
- 100 7. A method as claimed in any preceding claim, in which the spaced-apart lines of weakness are formed by providing slit-score or perforation lines in 105 the board blank.
- 105 8. A method as claimed in claim 7, in which the 110 lines of weakness are spaced apart by at least the axial length of packaged cylindrical articles.
- 110 9. A method as claimed in claim 7, in which the 115 lines of weakness coincide with edges of the said one wall or are formed one in each adjacent wall that also incorporates the reinforcing tape.
- 115 10. A packaging carton formed from a blank of 120 stiff but foldable board material and containing two rows of identically sized articles, which carton is of right parallelepipedic shape and comprises a reinforced handle which extends parallel to and is intersected by the median plane between the rows and an opening flap delineated by said handle and by spaced-apart lines of weakness, the handle including a reinforcing tape which extends at least across one wall of the carton and lies in the said median plane.
- 120 11. A carton as claimed in claim 10, in which the 125 lines of weakness coincide with edges of said one wall.
- 125 130

12. A carton as claimed in claim 11, in which the lines of weakness are formed one in each wall adjacent to said one wall, which adjacent wall or walls include reinforcing tape.

5 13. A carton as claimed in any of claims 10 to 12, in which the board material is corrugated fibre board and the reinforcing tape extends at right angles to the flutes of the corrugations, the tape being disposed between the corrugated sheet and one facing sheet of the board.

10 14. A packaging carton substantially as hereinbefore described with reference to and as illustrated in Figures 1 and 3 of the accompanying drawings.

15 15. A packaging carton substantially as hereinbefore described with reference to and as illustrated in Figures 2 and 4 of the accompanying drawings.

20 Amendments to the claims have been filed, and have the following effect:-

(a) Claims 1-15 above have been deleted or textually amended.

25 (b) New or textually amended claims have been filed as follows:-

1. A method of packaging a plurality of identically sized articles comprises locating the required 30 number of articles in two adjacent rows in a right parallelepipedic carton folded up from a preformed blank of stiff but foldable board material, the board material incorporating firstly a reinforcing tape which extends at least across one wall of the carton 35 and lies in the median plane between the two rows and secondly a spaced-apart pair of lines of weakness which extend towards said reinforcing tape, the blank having two at least substantially parallel cuts formed one on each side of the reinforcing tape, 40 which cuts extend completely across the said one wall of the completed carton and each encroaches slightly on both of the adjacent walls of the carton that also incorporate the reinforcing tape.

2. A method as claimed in claim 1, in which the 45 blank is folded around a double row array of articles to create a carton filled with two rows of articles.

3. A method as claimed in claim 2, in which the blank is dimensioned to give rise to a carton that completely surrounds the articles but provides at 50 least one opening through which a part only of at least some of the articles in at least one row can be viewed.

4. A method as claimed in any preceding claim, in which the board material is corrugated fibreboard 55 and the reinforcing tape extends at right angles to the flutes of the corrugations, the tape being disposed between the corrugated sheet and one facing sheet of the board and is thus sensibly invisible in the completed carton.

60 5. A method as claimed in any preceding claim, in which the spaced-apart lines of weakness are formed by providing slit-score or perforation lines in the board blank.

65 6. A method as claimed in claim 5, in which the lines of weakness are spaced apart by at least the axial length of packaged cylindrical articles.

7. A method as claimed in claim 5, in which the lines of weakness coincide with edges of the said one wall or are formed one in each adjacent wall that also 70 incorporates the reinforcing tape.

8. A packaging carton formed from a blank of stiff but foldable board material and containing two rows of identically sized articles, which carton is of right parallelepipedic shape and comprises a reinforced 75 handle which extends parallel to and is intersected by the median plane between the rows and an opening flap delineated by said handle and by spaced-apart lines of weakness, the handle including a reinforcing tape which lies in the said median plane 80 and which extends completely across one wall of the carton and at least partly across two of the walls of the carton adjacent to the said one wall, the tape being located between substantially parallel cuts in the board material which encroach onto said two 85 adjacent walls to define the reinforced handle.

9. A carton as claimed in claim 8, in which the lines of weakness coincide with edges of said one wall.

10. A carton as claimed in claim 8, in which the 90 lines of weakness are formed one in each of the said two adjacent walls.

11. A carton as claimed in any one of claims 8 to 10, in which the board material is corrugated fibre board and the reinforcing tape extends at right angles to the flutes of the corrugations, the tape being disposed between the corrugated sheet and one facing sheet of the board.

12. A carton as claimed in any one of claims 8 to 11, in which the reinforcing tape extends the whole 100 length of the blank and thus surrounds the articles packaged in the carton.

13. A packaging carton substantially as hereinbefore described with reference to and as illustrated in Figures 1 and 3 of the accompanying drawings.

105 14. A packaging carton substantially as hereinbefore described with reference to and as illustrated in Figures 2 and 4 of the accompanying drawings.